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(54) **WATER PUMP, AIR CONDITIONER CLEANING DEVICE, WALL-MOUNTED INDOOR UNIT, AND AIR CONDITIONER**

(57) The present disclosure provides a water pump, a device for cleaning an air conditioner, a wall-mounted indoor unit, and an air conditioner. The wall-mounted indoor unit includes the device for cleaning the air conditioner. The device for cleaning the air conditioner in-

cludes the water pump. The water pump includes a pump body and a plurality of columns. The pump body is defined with a water outlet and a water inlet communicated with the water outlet. The plurality of columns are disposed on the pump body, and surrounding the water inlet.

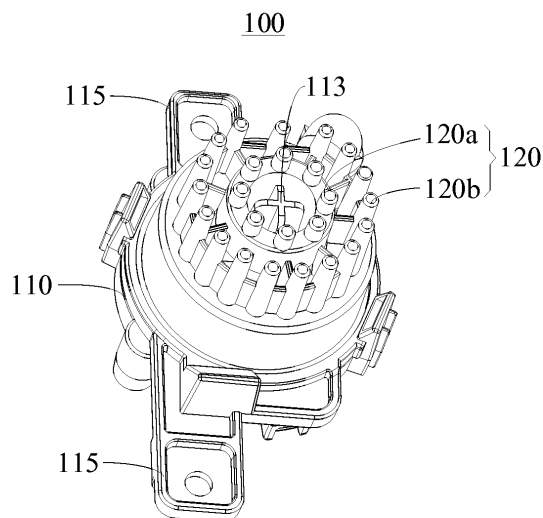


FIG. 1

Description**CROSS REFERENCE TO RELATED APPLICATIONS**

5 [0001] The present disclosure claims the priorities of Chinese Patent Applications with No. 201910159396.7 and 201920267970.6, entitled "WATER PUMP, DEVICE FOR CLEANING AIR CONDITIONER, WALL-MOUNTED INDOOR UNIT, AND AIR CONDITIONER", filed on March 3, 2019, which are hereby incorporated by reference in their entirety.

Technical field

10 [0002] The present disclosure relates to the technical field of air conditioner, and in particular, to a water pump, a device for cleaning an air conditioner, a wall-mounted indoor unit, and an air conditioner.

Background

15 [0003] A water pump is often used as a pressurized machine for conveying liquid. A conventional water pump has a water outlet and a water inlet communicated with the water outlet. When the water pump is working, the water pump will drive the liquid to flow into the water pump from the water inlet and then to flow out through the water outlet. However, when flocculent materials (such as hair, fibers, etc.) which are very likely to block the water pump are present in the liquid, the strong suction of the water pump will inhale the liquid together with the flocculent materials, thereby causing the water pump to be damaged.

Summary

25 [0004] The main objective of the present disclosure is to provide a water pump, which aims to reduce the occurrence of water pump blockage and prolong the service life of the water pump.

[0005] In order to achieve the above objective, the present disclosure provides a water pump. The water pump includes a pump body defining a water outlet and a water inlet communicated with the water outlet, and a plurality of columns disposed on the pump body and surrounding the water inlet.

30 [0006] In an embodiment, the pump body includes a water inlet column protruded from a periphery of the water inlet; the plurality of columns are disposed on an end surface of the water inlet column, and/or the plurality of columns are disposed on an outer periphery of the water inlet column.

[0007] In an embodiment, a connecting rib is disposed between the columns disposed on the outer periphery of the water inlet column and a side wall of the water inlet column.

35 [0008] In an embodiment, a connecting plate is disposed between two adjacent ones of the columns disposed on the outer periphery of the water inlet column.

[0009] In an embodiment, the connecting plate includes three adjacent sides, and each of the three sides is connected to a surface of each adjacent column, or a surface of the pump body.

40 [0010] In an embodiment, a height of the connecting plate on the surface of the pump body is smaller than a height of the water inlet column on the same surface of the pump body.

[0011] In an embodiment, the height of the connecting plate on the surface of the pump body is no less than one fifth of a height of the column connected to the connecting plate, and is no more than one-half of the height of the column.

[0012] In an embodiment, end surfaces of the plurality of columns are flush with each other.

[0013] In an embodiment, an outer diameter of the column is gradually reduced in a height direction of the column.

45 [0014] In an embodiment, the plurality of columns are configured to twice or thirdly surround the water inlet.

[0015] In an embodiment, the pump body includes a seat having the water inlet and a cavity communicating the water inlet with the water outlet; a cover covering the cavity; and a driving blade penetrating through the cover and inserted into the cavity.

50 [0016] The present disclosure further provides a device for cleaning an air conditioner, including: a water collecting box and a water pump. The water pump includes a pump body defining a water outlet and a water inlet communicated with the water outlet; and a plurality of columns disposed on the pump body and surrounding the water inlet. The water outlet of the water pump is in communication with the water collecting box.

[0017] In an embodiment, the water pump includes a pair of lugs laterally protruded from an outer surface of the pump body, and connected to the water collecting box.

55 [0018] In an embodiment, the device further includes a first rolling brush, a second rolling brush, and a driving assembly. The first rolling brush and the second rolling brush are disposed on the water collecting box in a top-and-bottom direction, and the driving assembly is connected to the first rolling brush and the second rolling brush.

[0019] The present disclosure further provides a wall-mounted indoor unit and an air conditioner. The air conditioner

includes an outdoor unit and the wall-mounted indoor unit connected to the outdoor unit through a refrigerant pipe. The wall-mounted indoor unit includes a housing and a device for cleaning an air conditioner, mounted in the housing for cleaning an internal member of the wall-mounted indoor unit. The device includes a water collecting box and a water pump. The water pump includes a pump body defining a water outlet and a water inlet communicated with the water outlet; and a plurality of columns disposed on the pump body and surrounding the water inlet. The water outlet of the water pump is in communication with the water collecting box.

[0020] In an embodiment, the housing includes a chassis, the chassis is provided with a water receiving groove, and the water pump of the device is in communication with the water receiving groove.

[0021] In an embodiment, the plurality of columns of the water pump is inserted into the water receiving groove.

[0022] In an embodiment, the internal member is a filter screen of the wall-mounted indoor unit.

[0023] In the technical solutions of the present disclosure, a plurality of columns are disposed on the water pump, and the plurality of columns are disposed around the water inlet to be in the process of water entering the water pump, the plurality of columns are used to wrap the flocculent materials in the liquid to prevent the flocculent materials from being sucked into the water pump, thereby reducing the clogging of the water pump and prolonging the service life of the water pump. In addition, since the flocculent materials are wound around the column, when the water pump is cleaned, it is only necessary to pull down the flocculent materials from the column, which is simple and easy to clean.

Brief description of the drawings

[0024] In order to more clearly illustrate the embodiments of the present disclosure or the technical solutions in the related art, the drawings used in the embodiments or the related art will be briefly described below. Obviously, the drawings in the following description are only some embodiments of the present disclosure. It will be apparent to those skilled in the art that other figures can be obtained from the structures illustrated in the drawings without the inventive effort.

FIG. 1 is a schematic structural view of a water pump according to an embodiment of the present disclosure;

FIG. 2 is a top view of the water pump in FIG. 1;

FIG. 3 is a cross-sectional view taken along line I-I in FIG. 2;

FIG. 4 is a side view of the water pump in FIG. 1;

FIG. 5 is a schematic structural view of a wall-mounted indoor unit according to an embodiment of the present disclosure;

FIG. 6 is a schematic view showing a portion of the structure of the wall-mounted indoor unit in FIG. 5;

FIG. 7 is a schematic view showing the cooperation of a device for cleaning an air conditioner with a filter screen in FIG. 6;

FIG. 8 is a cross-sectional view showing a portion of the structure of the wall-mounted indoor unit in FIG. 5; and

FIG. 9 is an enlarged view of portion A in FIG. 8.

Description of reference numerals:

Label	Name	Label	Name
100	Water pump	130	Connecting rib
110	Pump body	140	Connecting plate
111	Seat	200	Device for cleaning an air conditioner
112	Cover	210	Water collecting box
113	Driving blade	220	First rolling brush
114	Water inlet column	230	Second rolling brush
115	Lug	300	Wall-mounted indoor unit

(continued)

Label	Name	Label	Name
101	Water inlet	310	Housing
102	Water outlet	311	Chassis
103	Cavity	301	Water receiving groove
120	Column	320	Cross flow wind turbine
120a	First column	330	Filter screen
120b	Second column	340	Filter screen grille

[0025] The realization of the objective, functional characteristics, advantages of the present disclosure are further described with reference to the accompanying drawings.

Detailed description of the embodiments

[0026] The technical solutions of the embodiments of the present disclosure will be clearly and completely described in the following with reference to the accompanying drawings. It is obvious that the embodiments to be described are only a part rather than all of the embodiments of the present disclosure. Based on the embodiments of the present disclosure, all other embodiments obtained by those skilled in the art without creative efforts are within the scope of the present disclosure.

[0027] It is to be understood that, all of the directional instructions in the embodiments of the present disclosure (such as top, bottom, left, right, front, rear...) can only be used for explaining relative position relations, moving condition of the elements under a special form (referring to figures), and so on, if the special form changes, the directional instructions changes accordingly.

[0028] Besides, the technical solution of each embodiment can be combined with each other, however the technical solution must base on that the ordinary skill in that art can realize the technical solution, when the combination of the technical solutions is contradictory or cannot be realized, it should consider that the combination of the technical solutions does not exist, and is beyond the protection scope of the present disclosure.

[0029] The present disclosure provides a water pump for use as a pressurized machine for conveying liquids (such as water, oil, solution, emulsion, and the like). The water pump can reduce the occurrence of water pump blockage and prolong the service life of the water pump.

[0030] Referring to FIG. 1 to FIG. 3, a water pump 100 of the present disclosure includes a pump body 110 defining a water outlet 102 and a water inlet 101 communicated with the water outlet 102; and a plurality of columns 120 disposed on the pump body 110 and surrounding the water inlet 101.

[0031] Specially, the pump body 110 includes the water inlet 101 on the lower surface and the water outlet 102 on the upper surface. A plurality of columns 120 are disposed on the lower surface of the pump body 110 and surrounding the water inlet 101. When the water pump 100 is in operation, the liquid is driven to enter the inside of the water pump 100 from the water inlet 101, and then the liquid is driven to flow out from the water outlet 102. During the influent process, the liquid flows from the gap between the plurality of columns 120 to the water inlet 101, and the flocculent materials in the liquid are wound around the plurality of columns 120, which are not easily sucked into the interior by the water pump 100.

[0032] The plurality of columns 120 may surround the water inlet 101 along a circular circumference. Of course, the plurality of columns 120 can also surround the water inlet 101 along the square circumference. Specifically, the corresponding design can be made according to the shape of the water inlet 101 and the shape of the pump body 110, and is not limited herein.

[0033] In the technical solutions of the present disclosure, a plurality of columns 120 are disposed on the water pump 100, and the plurality of columns 120 are disposed around the water inlet 101 to be in the process of water entering the water pump 100, the plurality of columns 120 are used to wrap the flocculent materials in the liquid to prevent the flocculent materials from being sucked into the water pump 100, thereby reducing the clogging of the water pump 100 and prolonging the service life of the water pump 100. In addition, since the flocculent materials are wound around the column 120, when the water pump 100 is cleaned, it is only necessary to pull down the flocculent materials from the column 120, which is simple and easy to clean.

[0034] Referring to FIG. 1 to FIG. 3, in an embodiment, the plurality of columns 120 may surround the water inlet 101 one or more turns. It is considered here that if the plurality of columns 120 wrap around the water inlet 101 only one turn, it is possible that some of the flocculent materials are detached from the column 120 under the strong suction of

the water pump 100, and are sucked into the inside of the water pump 100. Therefore, the number of turns of the plurality of columns 120 around the water inlet 101 can be appropriately increased.

[0035] However, the number of turns is not as high as possible. When the number of turns is larger, the resistance of the liquid flow is larger, and the amount of liquid entering the water pump 100 becomes smaller. Therefore, in order to ensure that the water pump 100 has a better filtering effect and a larger amount of water inflow, optionally, the plurality of columns 120 may surround the water inlet 101 two or three turns. As for the number of the columns 120 per turn, it is only necessary to arrange according to the size of the columns 120 per turn, which is not specifically limited.

[0036] As for the shape and structure of the column 120, it is not specifically limited. The column 120 may be arranged in a cylindrical shape, or may be arranged in a polygonal prism shape or in a flat shape. Specifically, the plurality of columns 120 are arranged in a cylindrical shape, so that the resistance of the column 120 to the liquid flow can be reduced, facilitating the liquid to pass through the gap between the adjacent columns 120 and flow to the water inlet 101.

[0037] In addition, in view that the flocculent materials are lighter, they often float on the water. In order to improve the filtering effect of the water pump 100, the outer diameter of the column 120 may be gradually reduced in the height direction thereof. This can make the column 120 "the upper end has a large diameter and the lower end has a small diameter", and the upper end of the column 120 has a larger outer diameter, which is more convenient for winding the flocculent materials. The lower end of the column 120 has a small outer diameter and a small resistance to water flow, which facilitates the water to pass through.

[0038] In an embodiment, in order to enhance the effect of filtering the flocculent materials of the plurality of columns 120, the end surfaces of the plurality of columns 120 are flush with each other. If a part of the flocculent materials are detached from the column 120 in the peripheral region, it is finally entangled by the column 120 of the inner region during the movement towards the water inlet 101, thereby effectively improving the filtering effect.

[0039] Referring to FIG. 1 to FIG. 3, in an embodiment, in order to facilitate the water pump 100 to drive the liquid from the water inlet 101, the pump body 110 includes a water inlet column 114 protruded from a periphery of the water inlet 101. When the water pump 100 is used, only the water inlet column 114 of the water pump 100 is kept under the liquid surface to extract the liquid. For a specific position of the plurality of columns 120 on the pump body 110, the plurality of columns 120 are disposed on an end surface of the water inlet column 114, and/or the plurality of columns 120 are disposed on an outer periphery of the water inlet column 114.

[0040] That is to say, the plurality of columns 120 may be disposed entirely on the end surfaces of the inlet water column 114 to surround the position closer to the water inlet 101. Alternatively, the plurality of columns 120 may also be disposed on the outer periphery of the water inlet column 114 to surround the peripheral position of the water inlet 101. Alternatively, a portion of the columns 120 are disposed on the end surface of the water inlet column 114, and the remaining portion of the columns 120 surround the outer periphery of the water inlet column 114.

[0041] Specially, the plurality of columns 120 includes a plurality of first columns 120a and a plurality of second columns 120b. The first columns 120a are disposed on the end surface of the water inlet column 114, and the second columns 120b surround the outer periphery of the water inlet column 114. Since the circumference of the first column 120a is smaller than the circumference of the second column 120b, the number of the first columns 120a is smaller than the number of the second columns 120b.

[0042] Referring to FIG. 1 to FIG. 3, in an embodiment, a connecting rib 130 is disposed between each of the columns 120 (i.e., the aforementioned second column 120b) disposed on the outer periphery of the water inlet column 114 and a corresponding side wall of the water inlet column 114. The connecting rib 130 can strengthen the strength of the column 120 and improve its stability.

[0043] Referring to FIG. 1 to FIG. 3, in an embodiment, a connecting plate 140 is disposed between two adjacent ones of the columns 120 (i.e., the aforementioned second column 120b) disposed on the outer periphery of the water inlet column 114. The connecting plate 140 can not only strengthen the strength of the column 120, but also improve its stability. Moreover, the connecting plate 140 can also intercept the flocculent materials floating on the liquid surface so as not to pass between the second columns 120b, thereby further improving the filtering effect.

[0044] Based on this, in order to improve the effect of the connecting plate 140 for intercepting the flocculent materials, the connecting plate 140 includes three adjacent sides, and each of the three sides is connected to a surface of each adjacent column 120, or a surface of the pump body 110. This design ensures that the connecting plate 140 intercepts the flocculent materials floating on the liquid surface outside the second columns 120b of the outer circumference.

[0045] Referring to FIG. 2 to FIG. 4, theoretically, the greater the height of the connecting plate 140 on the surface of the pump body 110, the more pronounced the effect of intercepting the flocculent materials. However, the gap between the columns 120 is also reduced, thereby reducing the throughput of the liquid. Therefore, in the present embodiment, the height of the connecting plate 140 on the surface of the pump body 110 is no less than one fifth of the height of the column 120 connected to the connecting plate 140, and is no more than one-half of the height of the column 120.

[0046] Specially, assuming that the height of the connecting plate 140 on the surface of the pump body 110 is H_1 , and the height of the column 120 (i.e., the second column 120b) connected to the connecting plate 140 is H_2 . Then, H_1 is no less than one fifth H_2 and no more than one-half H_2 . For example, but not limited to: H_1 is equal to one fifth H_2 , two

fifth H_2 , and one-half H_2 . Thus, the connecting plate 140 can have a better effect of intercepting the flocculent materials and ensure that there is sufficient gap between the adjacent two second columns 120b to supply water through.

[0047] Referring to FIG. 2 to FIG. 4, further, in order to prevent the connecting plate 140 from blocking the flow of water into the water inlet 101, the height of the connecting plate 140 on the surface of the pump body 110 is optionally smaller than the height of the water inlet column 114 on the same surface of the pump body 110. Assuming that the height of the water inlet column 114 on the same surface of the pump body 110 is H_3 , then H_1 is less than H_3 .

[0048] Referring to FIG. 1 to FIG. 3, based on any of the above embodiments, the pump body 110 includes a seat 111, a cover 112 and a driving blade 113. The seat 111 has a water inlet 101, and a cavity 103 communicating the water inlet 101 with the water outlet 102. The cover 112 covers the cavity 103, and the driving blade 113 penetrates through the cover 112 and is inserted into the cavity 103.

[0049] Specially, the water inlet 101 is defined on the lower surface of the seat 111, and the water outlet 102 is provided on the upper surface of the cover 112. A plurality of columns 120 are disposed around the water inlet 101. When the water pump 100 is in operation, the blades are driven to rotate to draw external liquid into the cavity 103, and then flow out from the water outlet 102.

[0050] Referring to FIG. 5 to FIG. 7, the present disclosure further provides a device for cleaning an air conditioner 200. The device 200 includes a water collecting box 210 and a water pump 100, and a water outlet 102 of the water pump 100 communicates with the water collecting box 210 to supply water to the water collecting box 210. The specific structure of the device 200 refers to the above embodiments. Since the device 200 adopts all the technical solutions of all the above embodiments, all the beneficial effects brought about by the technical solutions of the above embodiments are also not described herein.

[0051] Referring to FIG. 5 and FIG. 6, the device 200 is for cleaning an internal member of the wall-mounted indoor unit 300. The internal member may be a filter screen, a heat exchanger, or a cross flow wind turbine 320 or the like. Here, the internal member is specifically described as a filter screen as an example.

[0052] Referring to FIG. 7 to FIG. 9, in an embodiment, the device 200 is for cleaning the filter screen 330. The device 200 further includes a first rolling brush 220, a second rolling brush 230, and a driving assembly (not shown). The first rolling brush 220 and the second rolling brush 230 are disposed on the water collecting box 210 in a top-and-bottom direction, and the driving assembly is connected to the first rolling brush 220 and the second rolling brush 230.

[0053] Specially, the upper end of the water collecting box 210 is formed with an opening, and the first rolling brush 220 is mounted to the opening and at least partially immersed under the water surface of the water collecting box 210. The second rolling brush 230 is located on the upper side of the first rolling brush 220 and cooperates with the first rolling brush 220 to clamp one end of the filter screen. The driving assembly is connected to the first rolling brush 220 and the second rolling brush 230 to drive the second rolling brush 230 and the first rolling brush 220 to rotate to drive the filter screen to move. During this process, the second rolling brush 230 and the first rolling brush 220 cooperate to brush the dirt on the filter screen.

[0054] Referring to FIG. 7, in an embodiment, the water pump 100 is installed at the bottom of the water collecting box 210. In order to facilitate the connection of the water pump 100 to the water collecting box 210, the water pump 100 includes a pair of lugs 115 laterally protruded from the outer surface of the pump body 110, and connected to the water collecting box 210. The lug 115 and the water collecting box 210 can be connected through a snap structure or a screw structure. Specifically, the lug 115 is provided with a through hole, and the through hole is connected to the water collecting box 210 through a screw.

[0055] Referring to FIG. 5 to FIG. 7, the present disclosure further provides a wall-mounted indoor unit 300, including a housing 310 and a device for cleaning an air conditioner 200. The device 200 is mounted within the housing 310 for cleaning the internal member of the wall-mounted indoor unit 300. The specific structure of the device 200 refers to the above embodiments. Since the wall-mounted indoor unit 300 adopts all the technical solutions of all the above embodiments, all the beneficial effects brought about by the technical solutions of the above embodiments are also not described herein.

[0056] Referring to FIG. 5 to FIG. 7, the wall-mounted indoor unit 300 further includes a cross flow wind turbine 320, a heater exchanger (not shown), and a filter screen 330. The cross flow wind turbine 320 and the heater exchanger are both mounted within the housing 310. The housing 310 is defined with an air inlet, and a filter screen grille 340 is installed in the air inlet, and the filter screen 300 is mounted on the filter screen grille 340.

[0057] Referring to FIG. 5 to FIG. 7, the water source of the device 200 may be condensed water in the water receiving groove 301 of the wall-mounted indoor unit 300, or may be water outside the wall-mounted indoor unit 300. Herein, in order to improve the utilization of water resource, optionally, the housing 310 includes a chassis 311. The chassis 311 is provided with a water receiving groove, and the water pump 100 of the device 200 communicates with the water receiving groove 301. The water receiving groove 301 is configured to receive the condensed water generated by the heat exchanger of the wall-mounted indoor unit 300, and the condensed water is extracted by the water pump 100 for cleaning the filter screen and the water resource utilization rate is improved without additional water source.

[0058] However, the wall-mounted indoor unit 300 is usually installed in an indoor environment, and is easy to adsorb

hair or fibers such as wool. When the flocculent materials fall within the water receiving groove 301, the flocculent materials enter the water pump 100 along with the water of the water receiving groove 301, which is easy to block the water pump 100 of the air conditioner cleaning device 200, or cause secondary pollution during the process of cleaning the internal members.

[0059] In view of this, in order to avoid the above, a plurality of columns 120 of the water pump 100 are inserted into the water receiving groove 301. During the water inflow of the water pump 100, the liquid flows from the gap between the plurality of columns 120 to the water inlet 101, while the flocculent materials in the liquid are wound around the plurality of columns 120, and are not easily sucked into the interior by the water pump 100, thereby preventing the water pump 100 from being clogged or secondary pollution during the cleaning process.

[0060] The present disclosure further provides an air conditioner. The air conditioner includes an outdoor unit and a wall-mounted indoor unit of the air conditioner connected to the outdoor unit through a refrigerant pipe. The specific structure of the wall-mounted indoor unit refers to the above embodiments. Since the air conditioner adopts all the technical solutions of all the above embodiments, all the beneficial effects brought about by the technical solutions of the above embodiments are also not described herein.

[0061] The above are only alternative embodiments of the present disclosure, and thus do not limit the scope of the present disclosure. The equivalent structure or equivalent process transformations made by the present specification and the drawings are directly or indirectly applied to other related technical fields, and are included in the scope of the present disclosure.

Claims

1. A water pump, comprising:

a pump body defining a water outlet and a water inlet communicated with the water outlet; and
a plurality of columns disposed on the pump body and surrounding the water inlet.

2. The water pump according to claim 1,
wherein the pump body comprises a water inlet column protruded from a periphery of the water inlet;
wherein the plurality of columns are disposed on an end surface of the water inlet column, and/or
wherein the plurality of columns are disposed on an outer periphery of the water inlet column.

3. The water pump according to claim 2, further comprising:
a connecting rib disposed between the columns disposed on the outer periphery of the water inlet column and a side wall of the water inlet column.

4. The water pump according to claim 2, further comprising:
a connecting plate disposed between two adjacent ones of the columns disposed on the outer periphery of the water inlet column.

5. The water pump according to claim 4,
wherein the connecting plate comprises three adjacent sides, and each of the three sides is connected to a surface of each adjacent column, or a surface of the pump body.

6. The water pump according to claim 5,
wherein a height of the connecting plate on the surface of the pump body is smaller than a height of the water inlet column on the same surface of the pump body.

7. The water pump according to claim 5,
wherein the height of the connecting plate on the surface of the pump body is no less than one fifth of a height of the column connected to the connecting plate, and is no more than one-half of the height of the column.

8. The water pump according to claim 6,
wherein end surfaces of the plurality of columns are flush with each other.

9. The water pump according to claim 1,
wherein an outer diameter of the column is gradually reduced in a height direction of the column.

10. The water pump according to claim 1,
wherein the plurality of columns are configured to twice or thirdly surround the water inlet.

11. The water pump according to claim 1, wherein the pump body comprises:

a seat having the water inlet, and a cavity communicating the water inlet with the water outlet;
a cover covering the cavity; and
a driving blade penetrating through the cover and inserted into the cavity.

12. A device for cleaning an air conditioner, comprising:

a water collecting box; and
a water pump, comprising:

a pump body defining a water outlet and a water inlet communicated with the water outlet; and
a plurality of columns disposed on the pump body and surrounding the water inlet, and

wherein the water outlet of the water pump is in communication with the water collecting box.

13. The device according to claim 12,
wherein the water pump comprises:
a pair of lugs laterally protruded from an outer surface of the pump body, and connected to the water collecting box.

14. The device according to claim 12, further comprising:

a first rolling brush;
a second rolling brush; and
a driving assembly, and
wherein the first rolling brush and the second rolling brush are disposed on the water collecting box in a top-
and-bottom direction, and the driving assembly is connected to the first rolling brush and the second rolling brush.

15. A wall-mounted indoor unit, comprising:

a housing;
a device for cleaning an air conditioner, mounted in the housing for cleaning an internal member of the wall-
mounted indoor unit, and comprising:

a water collecting box; and
a water pump, comprising:

a pump body defining a water outlet and a water inlet communicated with the water outlet; and
a plurality of columns disposed on the pump body and surrounding the water inlet, and

wherein the water outlet of the water pump is in communication with the water collecting box.

16. The wall-mounted indoor unit according to claim 15,
wherein the housing comprises a chassis, the chassis is provided with a water receiving groove, and the water pump
of the device is in communication with the water receiving groove.

17. The wall-mounted indoor unit according to claim 16,
wherein the plurality of columns of the water pump is inserted into the water receiving groove.

18. The wall-mounted indoor unit according to claim 15,
wherein the internal member is a filter screen of the wall-mounted indoor unit.

19. An air conditioner, comprising:

an outdoor unit; and

EP 3 726 065 A1

a wall-mounted indoor unit connected to the outdoor unit through a refrigerant pipe, and comprising:

a housing;

a device for cleaning an air conditioner, mounted in the housing for cleaning an internal member of the wall-mounted indoor unit, comprising:

a water collecting box; and

a water pump, comprising:

a pump body defining a water outlet and a water inlet communicated with the water outlet, and
a plurality of columns disposed on the pump body and surrounding the water inlet, and

wherein the water outlet of the water pump is in communication with the water collecting box.

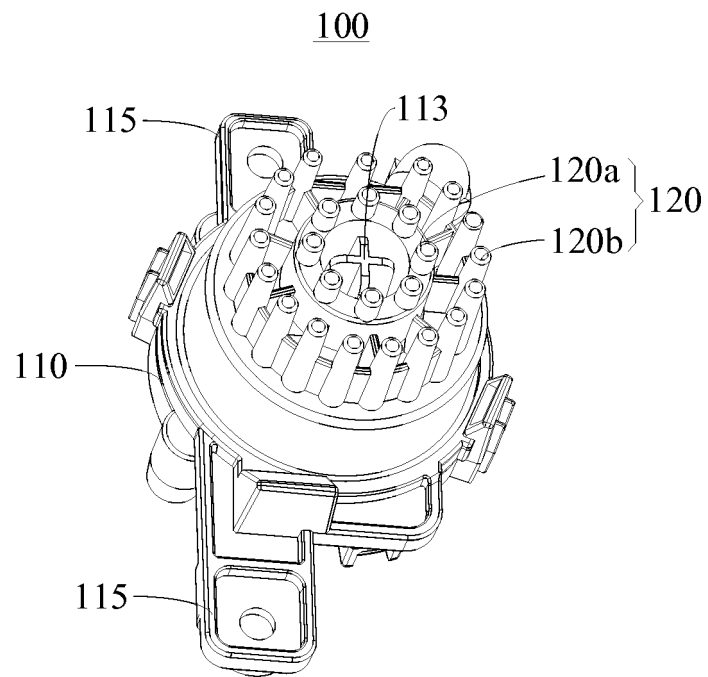


FIG. 1

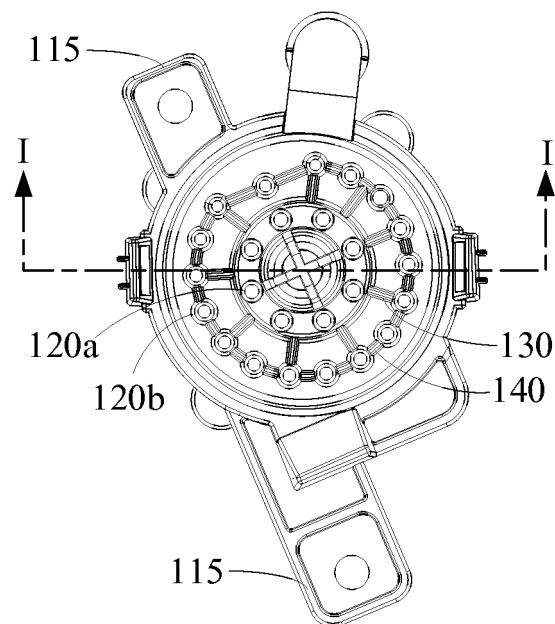


FIG. 2

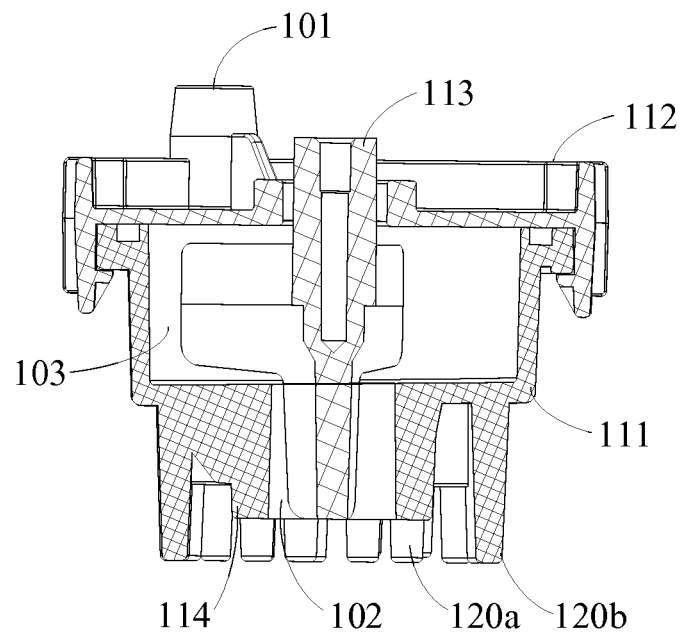


FIG. 3

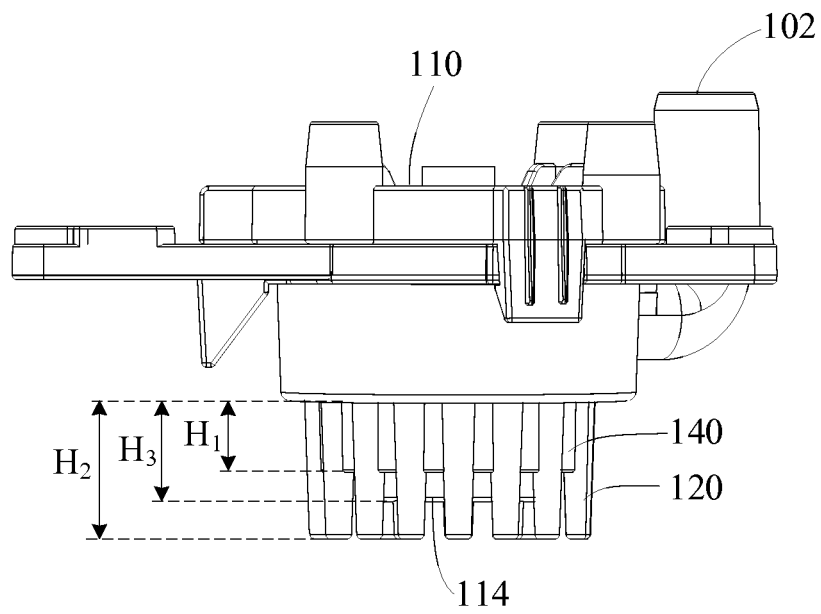


FIG. 4

300

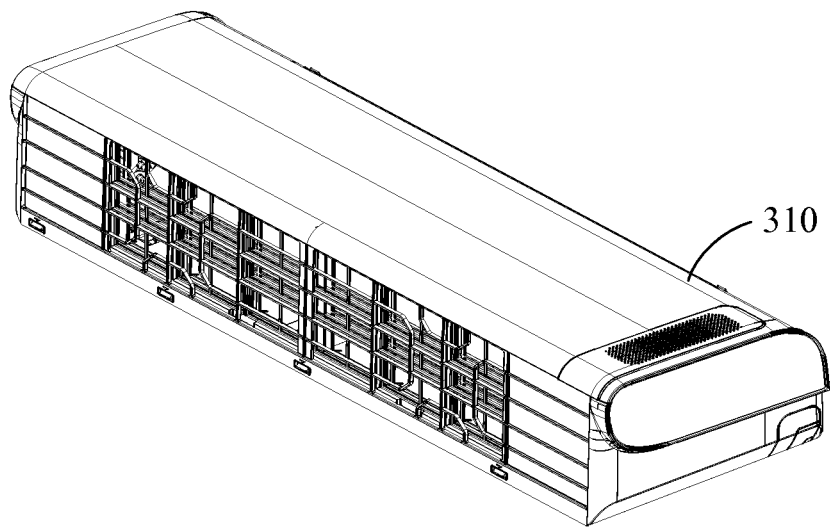


FIG. 5

300

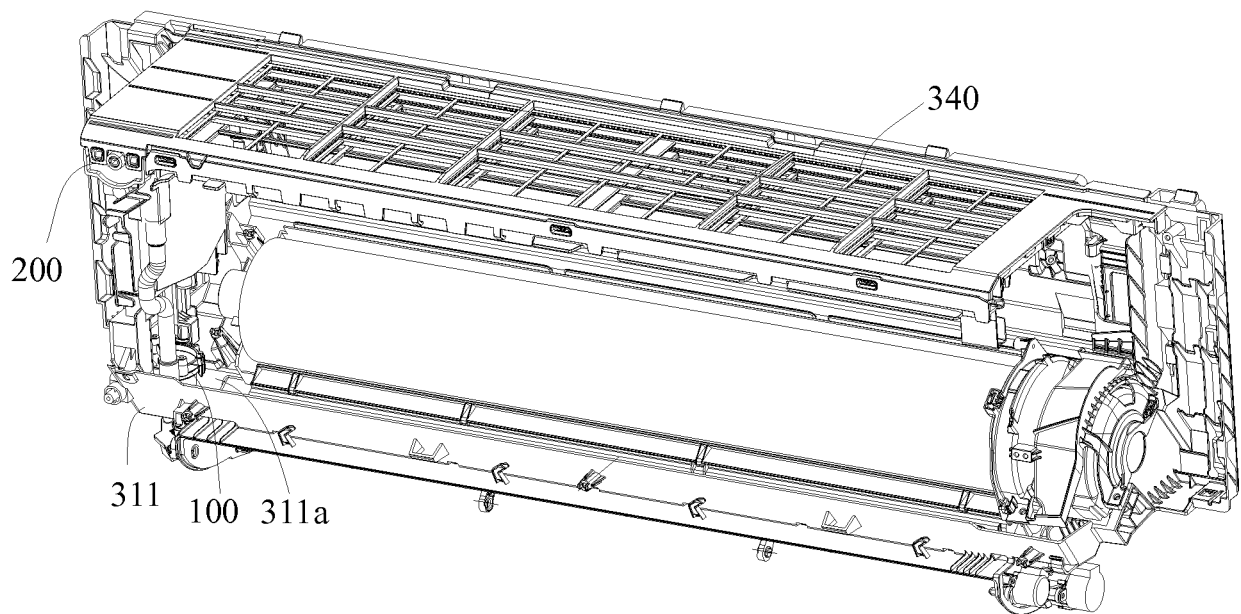


FIG. 6

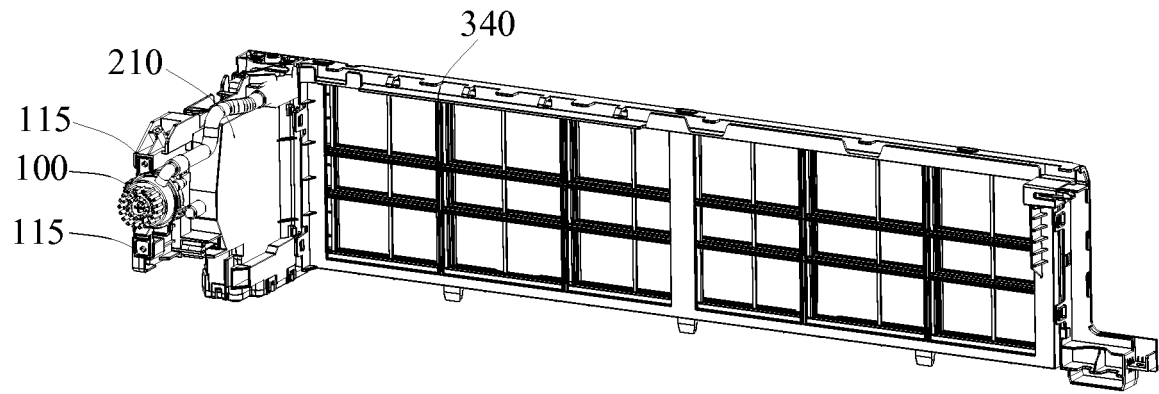


FIG. 7

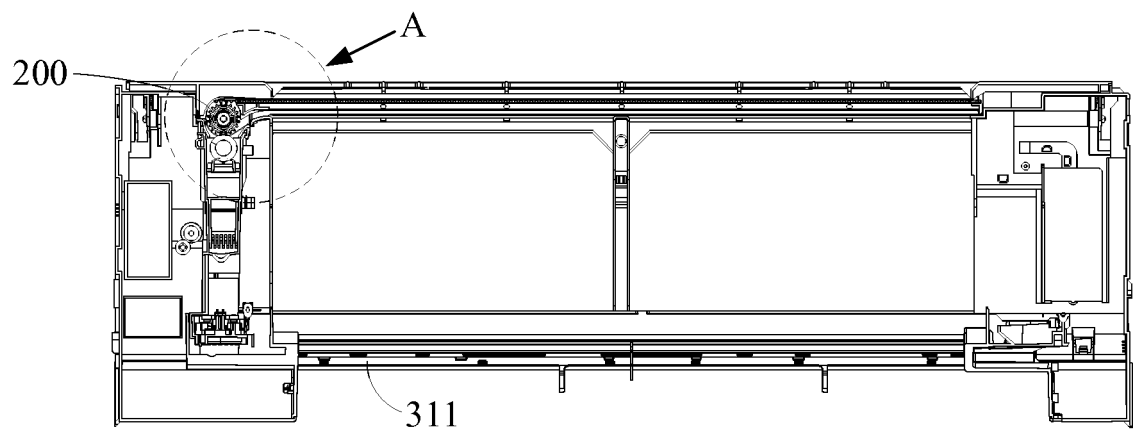


FIG. 8

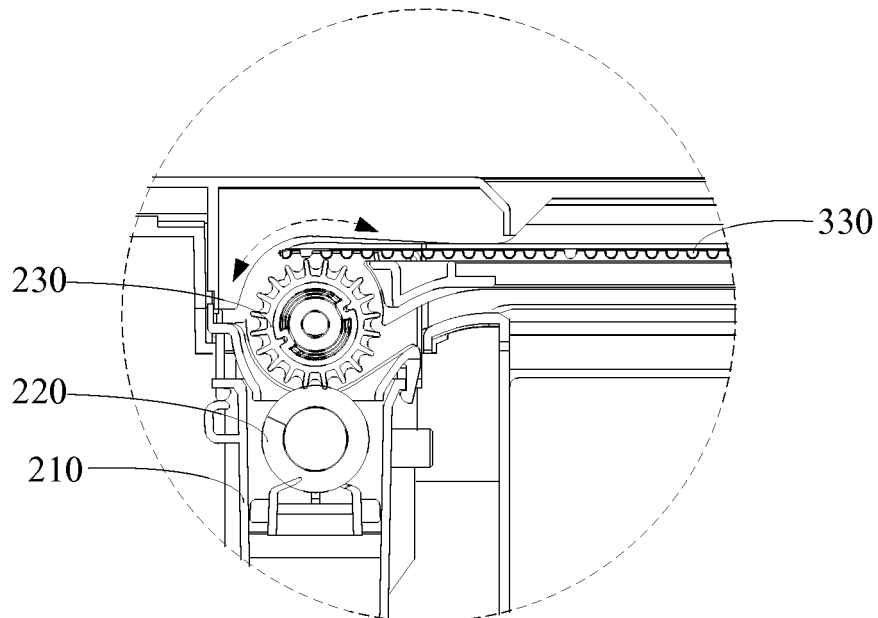


FIG. 9

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2019/112443

A. CLASSIFICATION OF SUBJECT MATTER

F04D 29/70(2006.01)i; F04D 29/42(2006.01)i; F04D 1/02(2006.01)i; F24F 13/00(2006.01)i; B08B 1/02(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

F04D; F24F; B08B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CNTXT; CNABS; VEN: 泵, 柱, 棒, 棍, 杆, 清洁, 清洗, 过滤, 堵塞, 防堵, 阻塞, 拦截, 絮, 头发, 毛发, 冷凝水, 进水口, 入口, 入水口, 进口, 刷, stick, block, entrance, level, pole, inlet, intake, pump, rod, filt+

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	CN 110017305 A (GUANGDONG MIDEA REFRIGERATION EQUIPMENT CO., LTD. et al.) 16 July 2019 (2019-07-16) claims 1-19	1-19
X	CN 106968959 A (SUQIAN JIELI ENVIRONMENTAL PROTECTION EQUIPMENT MANUFACTURING CO., LTD.) 21 July 2017 (2017-07-21) description, paragraphs [0015] and [0016], and figure 1	1-11
Y	CN 106968959 A (SUQIAN JIELI ENVIRONMENTAL PROTECTION EQUIPMENT MANUFACTURING CO., LTD.) 21 July 2017 (2017-07-21) description, paragraphs [0015] and [0016], and figure 1	12-19
Y	CN 208332483 U (GUANGDONG MIDEA REFRIGERATION EQUIPMENT CO., LTD. et al.) 04 January 2019 (2019-01-04) description, paragraphs [0056]-[0060], and figures 1 and 2	12-19
A	CN 207334901 U (GUANGDONG MEDIA REFRIGERATION EQUIPMENT CO., LTD.) 08 May 2018 (2018-05-08) entire document	1-19

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

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Date of the actual completion of the international search

05 December 2019

Date of mailing of the international search report

16 January 2020

Name and mailing address of the ISA/CN

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Telephone No.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2019/112443

C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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A	CN 109139563 A (BEIJING CHAOYANG WATER CONSERVANCY ENGINEERING CO., LTD.) 04 January 2019 (2019-01-04) entire document	1-19
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A	CN 208169140 U (THE JIANGSU GENERAL FACTORY OF WATER CONSERVANCY MACHINERY) 30 November 2018 (2018-11-30) entire document	1-19
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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/CN2019/112443

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REFERENCES CITED IN THE DESCRIPTION

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- CN 201920267970 [0001]